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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,795	01/13/2004	Bruce M. Harper	004085.P041	5449

7590 01/08/2007
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EXAMINER

DANIELS, MATTHEW J

ART UNIT	PAPER NUMBER
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1732

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/757,795

Applicant(s)

HARPER ET AL.

Examiner

Matthew J. Daniels

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 23-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/13/04, 1/17/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-22, drawn to a method, classified in class 264, subclass 293.
 - II. Claims 23-26, drawn to an apparatus, classified in class 425, subclass 112.
2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be used to practice another and materially different process, such as clamping a metallic article during a CNC machining process.
3. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, their recognized divergent subject matter, and because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.
4. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.
5. During a telephone conversation with Daniel Ovanezian on 29 December 2006 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-22.

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Affirmation of this election must be made by applicant in replying to this Office action. Claims 23-26 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Terminal Disclaimer

7. A terminal disclaimer was filed on 23 October 2006 in Application 10/659006 disclaiming the terminal portion of any patent resulting from this application which would extend beyond the expiration date of any patent resulting from Application 10/659006. The terminal disclaimer has been reviewed, accepted, and recorded.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. **Claims 1, 3-5, and 7** rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Davis (US 2002/0025408). **As to Claim 1,**

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Davis teaches a method comprising imprinting a stamper into an embossable film at an imprinting temperature (par. [0073]), the embossable film disposed over a base structure (par. [0072]); and separating the stamper from the embossable film (inherent that the film is subsequently coated, par. [0079]). Davis does not explicitly teach that the stamper is separated “at approximately the imprinting temperature”. However, Davis teaches that the mold (par. [0073]) and substrate (par. [0074]) are each heated to a temperature over, but within a few degrees of, the glass transition temperature, and that the temperature is maintained in order to enable substrate release (par. [0075]). Thus, Davis by providing a mold and a substrate at approximately the same temperature, embossing, and maintaining temperature in order to enable substrate release, it would be inherent that the stamper is separated from the embossable film at approximately the imprinting temperature. In the alternative, Davis teaches that the temperature of the mold and the substrate prior to embossing and during embossing are result effective variables which should be optimized in order to “optimize replication and enable substrate release from the mold while maintaining the integrity of the surface features” (par. [0075]). See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to provide the claimed temperatures in order to optimize replication and enable substrate release. **As to Claim 3**, see pars. [0073]-[0076]. **As to Claims 4 and 5**, the embossable film of Davis comprises a thermosetting material (pars. [0066]-[0070]) which would not have a glass transition temperature. **As to Claim 7**, Davis disposes a magnetic layer above the base structure in the areas that do not have the embossable film (pars [0079]-[0080], “applied to the substrate”, line 2 of par. [0079]).

9. **Claims 1 and 2** are rejected under 35 U.S.C. 102(b) as anticipated by Matsui (J. Vac. Sci. Technol. B, Vol. 19, No. 6, Nov/Dec 2001, pages 2801-2805). This additional rejection of Claim 1 is presented because Davis (US 2002/0025408) appears to teach away from the subject matter of Claim 2 in paragraph [0074]. **As to Claim 1**, Matsui teaches a method comprising imprinting a stamper into an embossable film at an imprinting temperature (Fig. 3b), the embossable film disposed over a base structure (Fig. 3b); and separating the stamper from the embossable film (Fig. 3b) at approximately the imprinting temperature (all steps in Fig. 3b are performed at room temperature, see Table 1). **As to Claim 2**, Matsui teaches imprinting at room temperature (Table 1).

10. **Claims 8, 11, and 13** rejected under 35 U.S.C. 102(b) as anticipated by Davis (US 2002/0025408). **As to Claim 8**, Davis teaches a method, comprising: transporting a base structure having an embossable film to a stamper (par. [0075], “placing the substrate in the mold”); heating the stamper and the embossable film (par. 0073)); imprinting the stamper into the embossable film (pars. [0073]-[0076]); separating the stamper from the embossable film (par. [0076], “substrate can then be removed from the mold”); and cooling the embossable film after the separating (inherent that other operations are subsequently performed on the substrate and film when they are separated at about the glass transition temperature, par. [0075]). **As to Claim 11**, see par. [0073], both the stamper and film/substrate are heated to a temperature just above the glass transition temperature. **As to Claim 13**, Davis teaches a substrate with an embossable film disposed prior to the heating (par. [0072], first three lines, also see pars. [0059]-[0062]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (2002/0025408) in view of Chou (USPN 5956216). Davis teaches the subject matter of Claim 1 above under 35 USC 102(b), or in the alternative, under 35 USC 103(a). **As to Claim 6**, Davis appears to be silent to selective removal of the embossable film. However, Chou teaches selectively removing the resist film to form a pattern of areas that do not have the resist film thereon (Fig. 4C), and disposing a magnetic layer in the areas that do not have the resist film (Fig. 4D, Item 48). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Chou into that of Davis in order to bond or apply recording material directly to the substrate.

12. **Claims 9 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (2002/0025408) in view of Ferro (USPN 6242718) and Granneman (WO 98/01890). Davis teaches the subject matter of Claim 8 above under 35 USC 102(b). **As to Claims 9 and 10**, Davis teaches preheating to an embossing temperature ([0073]-[0076]). However, Davis appears to be silent to the Bernoulli pick-up head and heating with the pick-up head. However, use of Bernoulli pick-up heads and heating with a Bernoulli pick-up head is conventional in the art and

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is taught by Ferro (Abstract). Granneman provides motivation for the combination of Ferro with Davis (Granneman, page 7, lines 29-38). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Ferro with that of Davis in order to avoid contacting the wafer and to rapidly heat it (Granneman, page 7, lines 29-38).

13. **Claims 12, 14, and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (2002/0025408) in view of Chou (USPN 5956216). Davis teaches the subject matter of Claims 8 and 13 above under 35 USC 102(b). **As to Claim 12**, Davis appears to be silent to the trenches and plateau areas, but Chou teaches trenches and plateaus (Fig. 8). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Chou into that of Davis a) in order to provide a magnetic material adapted for horizontal recording (4:54-64), and b) in order to provide a plurality of discrete elements of magnetic material, and c) because Davis clearly suggests the magnetic materials and method which Chou provides (Davis, par. [0080]). **As to Claims 14 and 15**, Chou teaches selectively removing the resist film to form a pattern of areas that do not have the resist film thereon (Fig. 4C), and disposing a magnetic layer in the areas that do not have the resist film (Fig. 4D, Item 48). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Chou into that of Davis in order to bond or apply recording material directly to the substrate.

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14. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (2002/0025408) in view of Chou (USPN 5956216), and further in view of Chou (USPN 6309580). Davis and Chou ('216) teach the subject matter of Claim 14 above under 35 USC 103(a). **As to Claim 16**, Davis and Chou ('216) appear to be silent to the deliberate etching of the base structure using the patterned resist film. However, Chou ('580) teaches that recesses may be formed in the substrate (Fig. 8 and 10:41-51) using a patterned resist film produced by imprinting (Figs. 1A-1D). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Chou ('580) into that of Davis because Davis suggests application of material into the spaces between the resist, and because doing so would mechanically secure the deposited material into the substrate, rather than to the surface of the film.

15. **Claims 17-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (2002/0025408) in view of Ferro (USPN 6242718) and Granneman (WO 98/01890). Davis teaches the subject matter of Claim 8 above under 35 USC 102(b). **As to Claim 17**, Davis clearly teaches preheating (pars. [0073]-[0076]), but Davis is silent to heating with a Bernoulli pick-up head. However, use of Bernoulli pick-up heads is conventional in the art and is taught by Ferro (Abstract). Ferro additionally teaches heating the gas supplied to the Bernoulli pick-up head (Fig. 5). Granneman provides motivation for the combination of Ferro with Davis (Granneman, page 7, lines 29-38). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Ferro with that of Davis in order to avoid contacting the wafer and to rapidly heat it (Granneman, page 7, lines 29-38).

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As to Claims 18-22, Davis teaches bringing the stamper and substrate into close proximity (Par. [0075]) and additionally that the particular temperatures of the stamper and embossable film represent result effective variables that should be optimized in order to provide the embossing of desired surface features onto the plastic surface of the substrate (Par. [0073]), optimize replication and enable substrate release (Par. [0074]). See MPEP 2144.05 II and *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to provide the claimed temperatures or temperature ratios to achieve the stated objectives of Davis.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJD 1/4/06

MSD


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SUPERVISORY PATENT EXAMINER
1/5/07